

IN THE CLAIMS:

- 1 1. A method of ultra-fast downloading of data in a mobile environment, comprising:
- 2 a) installing a first wireless low-power communication link between first and second
- 3 terminals;
- 4 b) installing a second significantly faster wireless communication link between the
- 5 terminals for data transfer; and
- 6 c) controlling the second wireless communication link via the first wireless
- 7 communication link to keep payload data transfer rate of the second wireless communication link
- 8 optimized, wherein the first wireless communication link frees the second wireless
- 9 communication link from link control overhead.

- 1 2. The method of claim 1 wherein no unnecessary overhead is transmitted through the
- 2 second wireless communication link and there is no change in the direction of the data transfer
- 3 flow of a receiver side eliminating sending acknowledgements to a transmitter side.

- 1 3. A method of ultra-fast downloading of data in a mobile environment, comprising
- 2 a) attaching to a mobile device a memory stick including integrated memories and
- 3 an ultra-wideband (UWB) transceiver;
- 4 b) establishing a wireless low power communication connection for exchanging
- 5 UWB parameters between the mobile device and a base device having base integrated memories
- 6 and a base UWB transceiver; and

7 c) initiating an ultra wideband transmission between the mobile device and the base
8 device based on the exchanged UWB parameters.

1 4. The method of claim 3, further comprising:

2 d) transmitting data from the base device to the memory stick via the ultra wideband
3 transmission link for storage in the integrated memories of the memory stick;

4 e) forwarding the transmitted data from the memory stick to the mobile device
5 memories through a connector and a bus interface; and

6 g) processing the transmitted data in the mobile device.

1 5. The method of claim 4 further comprising;

2 d) requesting an acknowledgement from the mobile device via the low power
3 communication connection before each sequential ultra wideband transmission.

1 6. The method of claim 5 further comprising:

2 e) performing pulse repetition rate and PN code modulation of a UWB transceiver to
3 transmit data.

1 7. The method of claim 6 further comprising:

2 f) storing transmitted data in the integrated memory of the receiving device.

1 8. The method of claim 7 further comprising:

2 g) performing precalculated heavy error coding of the transmitted data prior to
3 transmitting said data.

1 9. The method of claim 8 further comprising:

2 h) performing simple error checking of received transmitted data.

1 10. A method of duplex communication in a mobile environment, comprising:

2 a) attaching to a mobile device a memory stick including an integrated memory and
3 ultra wideband (UWB) transmitter and receiver which captures UWB transmitted data up to
4 1Gbit/second;

5 b) establishing a base device including an integrated memory and a base UWB
6 transmitter and receiver;

7 c) initiating a low power communication connection between the mobile device and
8 the base device;

9 d) exchanging UWB parameters between the devices via the low power
10 communication connection;

11 e) activating the mobile device UWB transmitter for transmitting data as modulated
12 pulse trains to the base device receiver;

13 f) demodulating the mobile device UWB transmitter pulse trains in the base device
14 UWB receiver;

15 g) transmitting from the base device UWB transmitter to the mobile device UWB
16 receiver, modulated pulse trains of the base device UWB transmitter interleaved between the
17 modulated pulse trains of the mobile device UWB transmitter; and
18 h) demodulating the modulated pulse trains of the base device UWB transmitter in
19 the mobile device UWB receiver.

1 11. The method of claim 10 wherein the low power communication connection is a Bluetooth
2 connection.

1 12. The method of claim 11 wherein the integrated memories comprise a high-speed memory
2 with direct memory access.

1 13. The method of claim 12 wherein the base device is another mobile device attached with a
2 memory stick.

1 14. Apparatus for ultra-fast downloading of data in a mobile environment, comprising:

2 a) means for installing a first low-power radio link between first and second
3 terminals;

4 b) means for installing a second significantly faster radio link between the terminals
5 for data throughput; and

6 c) means for controlling the second radio link via the first radio link to keep
7 throughput of the second radio link optimized by freeing the second radio link from link control
8 overhead.

1 15. The apparatus of claim 14 wherein the second radio link serves as a direct data channel
2 for actual data payload.

1 16. The apparatus of claim 14 wherein no unnecessary overhead is transmitted through the
2 second data link and there is no change in the direction of the flow of a receiver side eliminating
3 sending acknowledgements to a transmitter side.

1 17. The apparatus of claim 16 wherein the direct data channel eliminates time-consuming
2 adjustments, such as, transceiver/receiver switching where possible loss of data occurs.

1 18. The apparatus of claim 14 further comprising:

2 e) means including a high capacity memory and a UWB transceiver attached to a
3 terminal for capture of data at high speed and transfer to a utilization device at lower speeds.

1 19. Apparatus for ultra-fast downloading of data in a mobile environment, comprising:
2 a) a first control circuitry;
3 b) a first memory;
4 c) low power communications means for communicating over a wireless low power
5 communication link;
6 d) data bus circuitry interconnecting the first processor, first memory and low power
7 communication means; and
8 e) a detachable memory unit connectable to the data bus circuitry through a
9 connector interface, comprising:
10 i) a second control circuitry;
11 ii) a UWB receiver for receiving data over a UWB communication link
12 iii) a second memory for temporarily storing the received data, and
13 iv) circuit means connecting the second processor, UWB receiver and second
14 memory together and to the databus circuitry through the connector interface,
15 wherein the wireless low power communication link controls the UWB communication
16 link to keep data receiving rate of the UWB communication link optimized by freeing UWB
17 communication link from link control overhead.

1 20. The apparatus of claim 19 further comprising:

2 v) a UWB transmitter connected to the circuit means for transferring data over the UWB
3 communication link.

1 21. The apparatus of claim 19 further comprising:

2 g) display means connected to the first control circuitry.

1 22. The apparatus of claim 19 wherein the low power communication means is taken from
2 the group consisting of Bluetooth, IrDa, HIPERLAN, WLAN, ZigBee, IEEE 802.11x, and IEEE
3 802.15 and other low power communication means implementing compatible protocols.

1 23. A system for ultra-fast downloading of data between terminals in a mobile environment,
2 comprising:

3 a) means for attaching to first and second terminals a removable memory including
4 integrated memories and an ultra-wideband (UWB) transceiver;

5 b) means for installing a short-range communication connection between the
6 terminals;

7 c) means for activating the UWB transmitter in the first terminal for data transfer to
8 the second terminal, after exchanging UWB parameters for the UWB transmitter and receiver via
9 the short-range communication connection;

10 d) means for installing transmission link between the UWB transmitter of the first
11 terminal and the UWB receiver of the second terminal;
12 e) means for transmitting data from the first terminal to the second terminal or
13 another terminal at high speeds for storage in the integrated memories of the second terminal ;
14 and
15 f) means for processing the transmitted data in the second terminal or another
16 terminal at lower speeds than the transmission speed.

1 24. The system of claim 23 further comprising:

2 g) means for performing pulse repetition rate and PN modulation of the first UWB
3 transmitter for transmission of data.

1 25. The system of claim 24 further comprising:

2 h) means for performing precalculated heavy error coding of the transmitted data by
3 the first UWB transmitter.

1 26. The method of claim 25 further comprising:

2 (i) means for performing simple error check of received data by the second UWB
3 receiver.

- 1 27. The method of 23 further comprising:
- 2 (j) means for controlling the transmission link via the short- range power
- 3 communication connection to keep throughput of the transmission link optimized by freeing the
- 4 transmission link from link control overhead.